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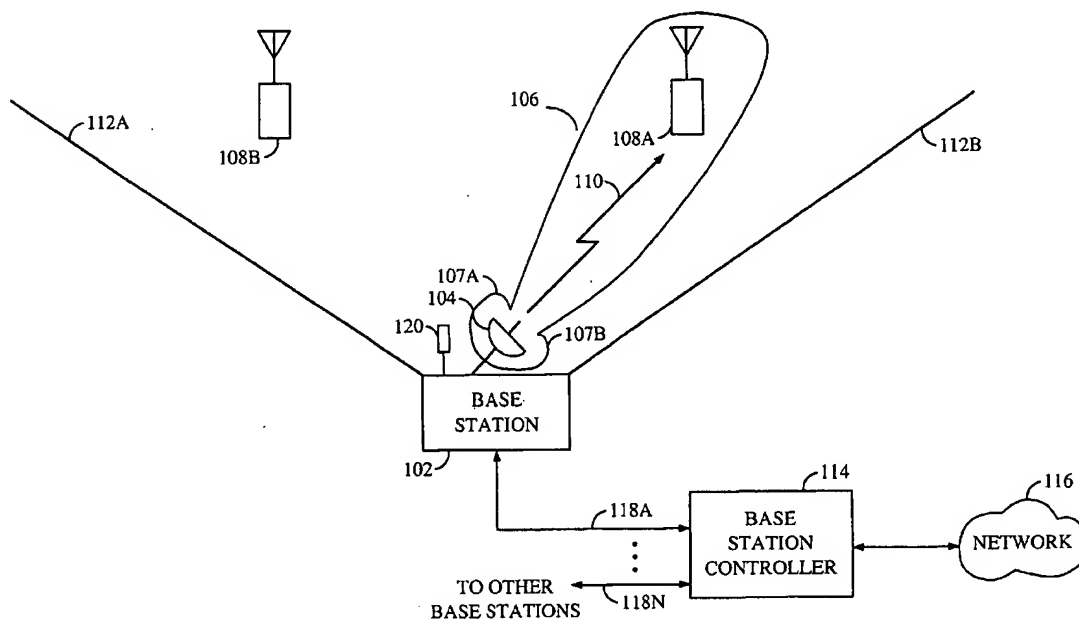
(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2003/0195017 A1**  
Chen et al. (43) **Pub. Date: Oct. 16, 2003**(54) **WIRELESS COMMUNICATION SYSTEM  
WITH BASE STATION BEAM SWEEPING****Related U.S. Application Data**(63) Continuation of application No. 09/409,944, filed on  
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Stein A. Lundhy, San Diego, CA (US)**Publication Classification**(51) **Int. Cl.<sup>7</sup>** ..... **H04B 1/38**(52) **U.S. Cl.** ..... **455/562.1; 455/561**

(57)

**ABSTRACT**

A method and apparatus for wireless communications wherein a base station transmits a signal to sending data to a subscriber station through a signal beam that sweeps through the coverage area of the base station. User data addressed to the subscriber station is buffered until the signal beam angle of the signal beam allows efficient transmission. The base station may alter the beam sweep speed or the shape of the beam's radiation pattern over time to maximize system efficiency and capacity.

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312n is connected to receiver 318 and transmitter 322 as well as to phase shifter 310n.

Detail Description Paragraph - DETX (40):

[0075] In an exemplary embodiment, the above-described techniques are used to adjust the width of radiation pattern 106 according to loading in the coverage area of base station 102. Control processor 316 monitors parameters such as the amount of data stored in buffer 305 and the number of active subscriber stations corresponding to each signal beam angle. Based on the values of these parameters, control processor 316 sends control signals to beam sweeping controller 314, which varies radiation pattern 106 accordingly. For example, the beam is made wider for light traffic regions of the coverage area, and made more narrow when sweeping through heavy traffic regions (regions having many active subscriber units or to which a large amount of data is to be transmitted).

width  $\leftrightarrow$  density

Not high data rate

Detail Description Paragraph - DETX (54):

[0089] In an exemplary embodiment, the above-described techniques are used to a